

WHAT IS CLAIMED IS:

- 1 1. A multi-channel video optical transmission system made to convert
- 2 a multi-channel video signal into an optical signal in an optical transmitter
- 3 and transmit the converted optical signal from said optical transmitter
- 4 through an optical fiber to an optical receiver,
- 5 said optical transmitter comprising:
- 6 pilot signal generating means for generating a pilot signal to
- 7 be superimposed on said multi-channel video signal inputted;
- 8 frequency modulating means for modulating said pilot signal
- 9 superimposed multi-channel video signal into a frequency-modulated
- 10 signal in batches; and
- 11 electrical-optical converting means for converting said
- 12 frequency-modulated signal into an optical signal and further for putting
- 13 the converted optical signal out to said optical fiber,
- 14 said optical receiver comprising:
- 15 optical-electrical converting means for receiving said optical
- 16 signal transmitted through said optical fiber to convert the received optical
- 17 signal into an electric frequency-modulated signal;
- 18 amplifying means for amplifying said frequency-modulated
- 19 signal obtained by said optical-electrical converting means; and
- 20 frequency demodulating means for frequency-demodulating
- 21 said frequency-modulated signal amplified by said amplifying means into a
- 22 pilot signal superimposed multi-channel video signal,
- 23 wherein said pilot signal generating means has a frequency
- 24 modulation function to modulate a frequency of said pilot signal for

25 modulating a frequency of an intermodulation distortion occurring at
26 frequencies corresponding to the sum of and difference between a
27 frequency of each carrier of said multi-channel video signal and a
28 frequency of said pilot signal.

1 2. A multi-channel video optical transmission system made to convert
2 a multi-channel video signal into an optical signal in an optical transmitter
3 and transmit the converted optical signal from said optical transmitter
4 through an optical fiber to an optical receiver,
5 said optical transmitter comprising:
6 pilot signal generating means for generating a pilot signal to
7 be superimposed on said multi-channel video signal inputted; and
8 electrical-optical converting means for converting said pilot signal
9 superimposed multi-channel video signal into an optical signal and further
10 for putting the converted optical signal out to said optical fiber,
11 said optical receiver comprising:
12 optical-electrical converting means for receiving said optical
13 signal transmitted through said optical fiber to convert the received optical
14 signal into an electric signal corresponding to said pilot signal
15 superimposed multi-channel video signal; and
16 amplifying means for amplifying said electric signal
17 corresponding to said pilot signal superimposed multi-channel video signal
18 obtained by said optical-electrical converting means,
19 wherein said pilot signal generating means has a frequency
20 modulation function to modulate a frequency of said pilot signal for

21 modulating a frequency of an intermodulation distortion occurring at
22 frequencies corresponding to the sum of and difference between a
23 frequency of each carrier of said multi-channel video signal and a
24 frequency of said pilot signal.

1 3. An optical transmitter for use in a multi-channel video optical
2 transmission system, which converts a multi-channel video signal into an
3 optical signal and transmits the converted optical signal through an optical
4 fiber to an optical receiver, said optical transmitter comprising:
5 pilot signal generating means for generating a pilot signal to be
6 superimposed on said multi-channel video signal inputted;
7 frequency modulating means for modulating said pilot signal
8 superimposed multi-channel video signal into a frequency-modulated
9 signal in batches; and
10 electrical-optical converting means for converting said frequency-
11 modulated signal into an optical signal and further for putting the
12 converted optical signal out to said optical fiber, wherein said pilot
13 signal generating means has a frequency modulation function to modulate
14 a frequency of said pilot signal for modulating a frequency of an
15 intermodulation distortion occurring at frequencies corresponding to the
16 sum of and difference between a frequency of each carrier of said multi-
17 channel video signal and a frequency of said pilot signal.

1 4. An optical receiver for use in a multi-channel video
2 transmission system, which receives a multi-channel video signal,
3 converted into an optical signal in an optical transmitter, through an

4 optical fiber, said optical receiver comprising:

5 optical-electrical converting means for receiving said optical
6 signal transmitted through said optical fiber to convert the received
7 optical signal into an electric frequency-modulated signal, with said
8 optical signal being produced in a manner that, at the conversion in
9 said optical transmitter, a pilot signal is superimposed on said multi-
10 channel video signal and a frequency of said pilot signal is
11 modulated by a frequency modulation function of said optical
12 transmitter for modulating a frequency of an intermodulation
13 distortion occurring at frequencies corresponding to the sum of and
14 difference between a frequency of each carrier of said multi-channel
15 video signal and a frequency of said pilot signal;

16 amplifying means for amplifying said frequency-modulated
17 signal obtained by said optical-electrical converting means; and

18 frequency demodulating means for frequency-demodulating
19 said frequency-modulated signal amplified by said amplifying means
20 into a pilot signal superimposed multi-channel video signal.

1 5. An optical transmitter for use in a multi-channel video optical
2 transmission system, which converts a multi-channel video signal into an
3 optical signal and transmits the converted optical signal through an optical
4 fiber to an optical receiver, said optical transmitter comprising:

5 pilot signal generating means for generating a pilot signal to be
6 superimposed on said multi-channel video signal inputted; and

7 electrical-optical converting means for converting said pilot signal

8 superimposed multi-channel video signal into an optical signal and further
9 for putting the converted optical signal out to said optical fiber,

10 wherein said pilot signal generating means has a frequency
11 modulation function to modulate a frequency of said pilot signal for
12 modulating a frequency of an intermodulation distortion occurring at
13 frequencies corresponding to the sum of and difference between a
14 frequency of each carrier of said multi-channel video signal and a
15 frequency of said pilot signal.

1 6. An optical receiver for use in a multi-channel video transmission
2 system, which receives a multi-channel video signal, converted into an
3 optical signal in an optical transmitter, through an optical fiber, said optical
4 receiver comprising:

5 optical-electrical converting means for receiving said optical signal
6 transmitted through said optical fiber to convert the received optical signal
7 into an electric signal in which a pilot signal is superimposed on the multi-
8 channel video signal, with said optical signal being produced in a manner
9 that a frequency of said pilot signal is modulated by a frequency
10 modulation function of said optical transmitter for modulating a frequency
11 of an intermodulation distortion occurring at frequencies corresponding to
12 the sum of and difference between a frequency of each carrier of said
13 multi-channel video signal and a frequency of said pilot signal; and

14 amplifying means for amplifying said electric signal obtained by the
15 optical-electrical converting means.